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EXAMINER
NGUYEN, TUNG X

ART UNIT	PAPER NUMBER
2829	

DATE MAILED: 09/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/786,357	Applicant(s) CHOI ET AL.	
	Examiner Tung X Nguyen	Art Unit 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *3* is/are allowed.

6)☒ Claim(s) *1-2, 4-7, 9-10, 13-16* is/are rejected.

7)☒ Claim(s) *8,11 and 12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 3/14/01 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Based upon applicant's remarks filed on 06/26/02, the restriction requirement in paper Number 5 is hereby withdrawn; all claims are examined.

Drawings

2. Figures 1-3, 8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roy et al (u.s.p 5,956,134), in view of Yamanaka (u.s.p 5,138,180).

As to claim 1, Roy et al. discloses in Fig. 3, an electronic component lead inspection device, the device comprising: a pickup header (44) for picking up an

electronic component package (12); a light source (70) for illuminating a light to the electronic component package; acquiring means (60, 65) for acquiring an image of the electronic component package; control means (90) for outputting an image signal of the electronic component package acquired by the acquiring means (60, 65); Roy et al. do not disclose a displaying means for receiving the image signal of the electronic component package output from the control means to inspect and display the image of the electronic component package. However, Yamanaka disclose in Fig. 2, a displaying means (18) for receiving the image signal of the electronic component package output from the control means (17) to inspect and display the image of the electronic component package (Col. 5, lines 40-41). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the system of Roy et al., and provide a displaying means as taught by Yamanaka in order to inspect and display the image of the electronic component package.

As to claim 5, Roy et al discloses in Fig. 3, the electronic component lead inspection device, wherein the acquiring means (60, 65) comprises: image transfer means (60, 65) for transmitting images of bottom view and side views of the electronic component package (Fig. 4, Fig. 5); and more than one camera (60, 65) for acquiring the images of bottom and side views of the electronic component package transferred through the image transfer means.

6. Claims 6-7, 9-10, 13-15, are rejected under 35 U.S.C. 103(a) as being unpatentable over Roy et al (u.s.p 5,956,134), in view of Yamanaka (u.s.p 5,138,180), and further in view of Lehnen et al. (u.s.p 5,956,134).

As to claim 6, Roy et al., in view of Yamanaka discloses in Fig. 2, all limitations except for wherein the image transfer means comprises: a first image transfer means for transmitting a bottom view of the electronic component package to a camera; second and third image transfer means for combining images of mutually facing side views of the electronic component package to thereafter transfer same to a camera. However, Lehnen et al. disclose in Fig. 4, a first image transfer means (46, 48) for transmitting a bottom view of the electronic component package to a camera (56, 58); second and third image transfer means (42, 44) for combining images of mutually facing side views of the electronic component package to thereafter transfer same to a camera (52, 54) for easily analyzing the images and examining the geometrical leads of semiconductor (Col. 6, lines 15-21). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the system of Roy et al., in view of Yamanaka, and provide some more cameras, as taught by Lehnen et al., in order to more easily analyze the images and examine the geometrical leads of semiconductor.

As to claim 7, Lehnen et al. disclose in Fig. 4, the electronic component lead inspection device, wherein the first image transfer means comprises at least more than one reflecting mirror (46, 48) for reflecting the bottom view of the electronic component package to thereafter transfer same to a camera (56, 58).

As to claim 9, Lehnen et al. disclose in Fig. 4, the electronic component lead inspection device, wherein the camera comprises: a first camera (56, 58) for acquiring a bottom view of the electronic component package (38) transmitted from the first image

transfer means (46, 48); and second and third cameras (52, 54) for acquiring respective images of side views of the electronic component package (38) combined and transmitted thereafter by the second and third image transfer means (52, 54).

As to claim 10, Lehnen et al., disclose in Fig. 4, the electronic component lead inspection device, wherein the image transfer (42, 44, 46, 48) means further comprises a height adjusting means for adjusting heights of the camera (Col. 5, lines 1-10).

As to claim 13, Lehnen et al., disclose in Fig. 4, the electronic component lead inspection device, wherein the acquiring means comprises: image transfer means (46, 48) for transmitting a bottom view of the electronic component package (38); and more than one camera (56, 58) for acquiring the bottom view of the electronic component package (38) transmitted via the image transfer means (46, 48).

As to claim 14, Lehnen et al., disclose in Fig. 4, the electronic component lead inspection device, wherein the acquiring means comprising: image transfer means (42, 44) for combining and transmitting images of mutually-facing side views of the electronic component package (38); and more than one camera (52, 54) for acquiring images of side views of the electronic component package (38) transmitted from the image transfer means (42, 44).

As to claim 15, the electronic component lead inspection device, wherein the acquiring means further comprises: a glass plate (inherent) for permeating images of the electronic component package but for preventing foreign objects such as dust, mold flesh and the like from entering the acquiring means.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 2, 5-7, 9-10, 13-15, are rejected under 35 U.S.C. 103(a) as being unpatentable over Roy et al (u.s.p 5,956,134), in view of Yamanaka (u.s.p 5,138,180), and Lehnen et al. (u.s.p 6,160,906).

As to claim 2, Roy et al. discloses in Fig. 3, an electronic component lead inspection device, the device comprising: a pickup header (44) for picking up an electronic component package (12); a light source (70) for illuminating a light to the electronic component package; acquiring means (60, 65) for acquiring an image of the electronic component package; control means (90) for outputting an image signal of the electronic component package acquired by the acquiring means (60, 65); Roy et al. do not disclose a reflecting plate attached to the pickup header; a light source for illuminating a light to the reflecting plate, and a displaying means for receiving the image signal of the electronic component package output from the control means to inspect and display the image of the electronic component package. However, Lehnen et al. disclose in Fig. 4, a reflecting plate (42, 44, 46, 48) attached to the pickup header (34); a light source (51) for illuminating a light to the reflecting plate for reflecting different

portions of the incident light beam to generate several deflected light beams in different directions (Col. 2, lines 10-15). Further, Yamanaka disclose in Fig. 2, a displaying means (18) for receiving the image signal of the electronic component package output from the control means (17) to inspect and display the image of the electronic component package (Col. 5, lines 40-41). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the system of Roy et al., and provide the reflecting plate attached to the pickup header as taught by Lehnen et al., in order to reflect different directions the incident light beam to generate several deflected light beams in different directions. It further would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the system of Roy et al., and Lehnen et al., and provide a displaying means as taught by Yamanaka in order to inspect and display the image of the electronic component package.

As to claim 5, Roy et al discloses in Fig. 3, the electronic component lead inspection device, wherein the acquiring means (60, 65) comprises: image transfer means (60, 65) for transmitting images of bottom view and side views of the electronic component package (Fig. 4, Fig. 5); and more than one camera (60, 65) for acquiring the images of bottom and side views of the electronic component package transferred through the image transfer means.

As to claim 6, Lehnen et al. discloses in Fig. 4, the electronic component lead inspection device, wherein the image transfer means comprises: a first image transfer means (46, 48) for transmitting a bottom view of the electronic component package to a

camera (56, 58); second and third image transfer means (42, 44) for combining images of mutually facing side views of the electronic component package to thereafter transfer same to a camera (52, 54).

As to claim 7, Lehnen et al. disclose in Fig. 4, the electronic component lead inspection device, wherein the first image transfer means comprises at least more than one reflecting mirror (46, 48) for reflecting the bottom view of the electronic component package to thereafter transfer same to a camera (56, 58).

As to claim 9, Lehnen et al. disclose in Fig. 4, the electronic component lead inspection device, wherein the camera comprises: a first camera (56, 58) for acquiring a bottom view of the electronic component package (38) transmitted from the first image transfer means (46, 48); and second and third cameras (52, 54) for acquiring respective images of side views of the electronic component package (38) combined and transmitted thereafter by the second and third image transfer means (52, 54).

As to claim 10, Lehnen et al., disclose in Fig. 4, the electronic component lead inspection device, wherein the image transfer (42, 44, 46, 48) means further comprises a height adjusting means for adjusting heights of the camera (Col. 5, lines 1-10).

As to claim 13, Lehnen et al., disclose in Fig. 4, the electronic component lead inspection device, wherein the acquiring means comprises: image transfer means (46, 48) for transmitting a bottom view of the electronic component package (38); and more than one camera (56, 58) for acquiring the bottom view of the electronic component package (38) transmitted via the image transfer means (46, 48).

As to claim 14, Lehnen et al. disclose in Fig. 4, the electronic component lead inspection device, wherein the acquiring means comprising: image transfer means (42, 44) for combining and transmitting images of mutually-facing side views of the electronic component package (38); and more than one camera (52, 54) for acquiring images of side views of the electronic component package (38) transmitted from the image transfer means (42, 44).

As to claim 15, the electronic component lead inspection device, wherein the acquiring means further comprises: a glass plate (inherent) for permeating images of the electronic component package but for preventing foreign objects such as dust, mold flesh and the like from entering the acquiring means.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 4-5 are rejected under 35 U.S.C. 102(b) as being unpatentable by Yamanaka (u.s.p 5,138,180).

As to claim 4, Yamanaka discloses in Fig. 2, an electronic component lead inspection device, the device comprising: a tray (11) for moving an accommodated electronic component; a light source (12) for illuminating a light to the electronic

component package (1); acquiring means (13, 14) for acquiring an image of the electronic component package above a traveling passage of the electronic component package (1); control means (16, 17) for outputting an image signal of the electronic component package acquired by the acquiring means; and inspecting and displaying means (18) for receiving the image signal of the electronic component package output from the control means to thereby inspect and display the image of the electronic component package (1).

As to claim 5, Yamanaka discloses in Fig. 2, the electronic component lead inspection device, wherein the acquiring means comprises: image transfer means (14) for transmitting images of bottom view and side views of the electronic component package (Fig. 3); and more than one camera (13, 14) for acquiring the images of bottom and side views of the electronic component package transferred through the image transfer means.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 6-7, 9-10, 13-15, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka (u.s.p 5,138,180), in view of Lehnen et al. (u.s.p 6,160,906).

As to claim 6, Yamanaka discloses in Fig. 2, all limitations except for wherein the image transfer means comprises: a first image transfer means for transmitting a bottom view of the electronic component package to a camera; second and third image transfer means for combining images of mutually facing side views of the electronic component package to thereafter transfer same to a camera. However, Lehnen et al. disclose in Fig. 4, a first image transfer means (46, 48) for transmitting a bottom view of the electronic component package to a camera (56, 58); second and third image transfer means (42, 44) for combining images of mutually facing side views of the electronic component package to thereafter transfer same to a camera (52, 54) for easily analyzing the images and examining the geometrical leads of semiconductor (Col. 6, lines 15-21). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the system of Yamanaka, and provide some more cameras, as taught by Lehnen et al., in order to more easily analyze the images and examine the geometrical leads of semiconductor.

As to claim 7, Lehnen et al. disclose in Fig. 4, the electronic component lead inspection device, wherein the first image transfer means comprises at least more than one reflecting mirror (46, 48) for reflecting the bottom view of the electronic component package to thereafter transfer same to a camera (56, 58).

As to claim 9, Lehnen et al. disclose in Fig. 4, the electronic component lead inspection device, wherein the camera comprises: a first camera (56, 58) for acquiring a bottom view of the electronic component package (38) transmitted from the first image transfer means (46, 48); and second and third cameras (52, 54) for acquiring respective images of side views of the electronic component package (38) combined and transmitted thereafter by the second and third image transfer means (52, 54).

As to claim 10, Lehnen et al., disclose in Fig. 4, the electronic component lead inspection device, wherein the image transfer (42, 44, 46, 48) means further comprises a height adjusting means for adjusting heights of the camera (Col. 5, lines 1-10).

As to claim 13, Lehnen et al., disclose in Fig. 4, the electronic component lead inspection device, wherein the acquiring means comprises: image transfer means (46, 48) for transmitting a bottom view of the electronic component package (38); and more than one camera (56, 58) for acquiring the bottom view of the electronic component package (38) transmitted via the image transfer means (46, 48).

As to claim 14, Lehnen et al., disclose in Fig. 4, the electronic component lead inspection device, wherein the acquiring means comprising: image transfer means (42, 44) for combining and transmitting images of mutually-facing side views of the electronic component package (38); and more than one camera (52, 54) for acquiring images of side views of the electronic component package (38) transmitted from the image transfer means (42, 44).

As to claim 15, the electronic component lead inspection device, wherein the acquiring means further comprises: a glass plate (inherent) for permeating images of

the electronic component package but for preventing foreign objects such as dust, mold flesh and the like from entering the acquiring means.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

14. Claim 16 is rejected under 35 U.S.C. 102(e) as being unpatentable by Beaty et al. (u.s.p 6,072,898).

As to claim 16, Beaty et al. disclose in Fig. 3a, an electronic component lead inspection device adapted to transmit an image of an electronic component package (70) by way of image transfer means (30, 32, 34, 36, 38) and to acquire the image transmitted by the image transfer means by way of a camera (15), wherein the image transfer means comprises: more than two reflecting mirrors (32, 36, 38) for respectively reflecting images of mutually facing side views of the electronic component package; and more than one right angle prism (30, 34) for combining images respectively reflected by the reflecting mirrors to transfer same to the one camera (15).

Allowabl Subject Matter

15. Claims 8, 11-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. Claim 3 is allowed.

17. The following is an examiner's statement of reasons for allowance:

Claim 3 recites, inter alia, an electronic component lead inspection device comprising: control means for controlling the first light source to illuminate a light if the electronic component package is a gull wing type electronic component package and for controlling the second light source to illuminate a light if the electronic component package is ball grid array type electronic component package and for outputting an image signal of the electronic component package acquired by the acquiring means.

Claim 8 recites, inter alia, the electronic component lead inspection, wherein the second and third image transfer means comprise: more than two reflecting mirrors for respectively reflecting images of mutually facing side views of the electronic component package; and more than one right angle prism for combining images respectively reflected by the reflecting mirror to the one camera.

Claim 11 recites, inter alia, the electronic component lead inspection device, wherein the height adjusting means comprises: a guide rail formed at one side of a housing; a guide plate integrally formed at the camera to upwardly and downwardly move the camera along the guide rail.

Claim 12 recites, inter alia, the electronic component lead inspection device, wherein the acquiring means comprising: image transfer means disposed on an upper portion of a housing to transfer image of bottom and side views of the electronic component package; and first, second and third cameras provided underneath the housing to respectively acquire bottom and side views of the electronic component package transmitted via the image transfer means, while the image transfer means comprises: a pair of reflecting mirrors centrally arranged at a housing for twice reflecting at right angle a bottom view of the electronic component package to thereafter transfer same to the first camera; four reflecting mirrors respectively disposed at four side views of the housing to reflect four side views of the electronic component package lengthwise of the housing; four right angle prisms mounted at four side views of the housing to respectively face the four reflecting mirrors to reflect at right angle the images of four side views reflected from the four reflecting mirrors relative to lengthwise direction of the housing; and two right angle prisms respectively disposed between two facing right angle prisms out of the four right angle prisms to combine images of two side views of the two facing electronic component package and to respectively transfer same to the second and third camera.

The art of record does not disclose the above limitations, nor would it be obvious to modify the art of record so as to include the above limitations.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung X Nguyen whose telephone number is (703) 305-3337. The examiner can normally be reached on 8:30am-5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (703) 308-1680. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-5841 for regular communications and (703) 308-5841 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

TN
August 30, 2002

9/5/02

MICHAEL SHERRY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800